

Before the  
**Federal Communications Commission**  
**Washington, D.C. 20554**

In the Matter of: )  
 )

Amendment of the Commission's Rules  
Regarding Dedicated Short- Range  
Communications Services in the  
5.859 – 5.925 GHz Band (5.9 GHz Band)

WT Docket No. 01-90

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Amendment of Parts 2 and 90 of the  
Commission's Rules to Allocate the 5.850- )  
5.925 GHz Band to the Mobile Service for )  
Dedicated Short Range Communications  
of Intelligent Transportation Services )

ET Docket No. 98-95  
RM-9096

To The Commission:

**COMMENTS OF THE  
NEW YORK STATE THRUWAY AUTHORITY**

The New York State Thruway Authority ("Authority") hereby submits the following comments in response to the Commission's Notice of Proposed Rulemaking and Order, FCC 02-302, released November 15, 2002 ("NPRM") in the above referenced matter concerning the establishment of Dedicated Short-Range Communication ("DSRC") services in the 5.850-5.925 GHz band.

**INTRODUCTION AND STATEMENT OF INTEREST**

The New York State Thruway Authority ("Authority") is a public benefit corporation responsible for the construction, reconstruction, operation and maintenance of the Governor Thomas E. Dewey Thruway ("Thruway"). The Thruway is a 641-mile superhighway crossing New York State that stretches from the New York City metro area to Buffalo. It is the longest

toll superhighway in the United States. New York State's nine largest cities are located within the Thruway corridor, which contains more than 80% of the State's population and registered motor vehicles. Over 230 million vehicles travel more than 10 billion miles on the Thruway each year.

In 1993, the Authority implemented an electronic toll collection ("ETC") system known as E-ZPass. With this system, an electronic tag containing a radio transmitter and computerized customer account information is mounted in a customer's car. As that car passes through a toll plaza, an antenna in the lane "reads" the tag's computerized information and the appropriate toll is deducted from the customer's account. By eliminating the need to stop to pay a toll, E-Z Pass substantially improves fuel consumption rates and vehicle flow, and reduces auto emissions and congestion, thereby contributing to a safer driving environment.

Today, 21 public transportation entities spanning 10 states belong to the E-ZPass Interagency Group, a consortium committed to the creation and maintenance of a fully interoperable, regional ETC system. E-ZPass is now the largest ETC network in the world.

Currently, ETC is the leading application of DSRC technology. Today, E-ZPass technology and equipment operates in the 902-928 MHz Band under Subpart M of Part 90 of the Commission's rules authorizing the Intelligent Transportation Systems Radio Service. It is anticipated that public transportation entities will, over time, migrate E-Z Pass operations to the new 5.850-5.925 GHz Band after DSRC rules and policies are established by this proceeding. Based on its substantial experience with DSRC and the planning, development and establishment of existing band services, the Authority is pleased to offer the following comments on this NPRM.

## **I. DSRC SERVICE DEFINITION**

In the NPRM, the Commission seeks comment on proposed changes to the definition of DSRC service, which is set forth in section 90.7 of the Commission's Rules as: "the use of non-voice radio techniques to transfer data over short distances between roadside and mobile radio units, between mobile units, and between mobile and portable units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of public and commercial environments."

More specifically, the Commission seeks comment on whether the phrase "non-voice" should be removed from this definition. The Authority supports this change because it will allow DSRC service to accommodate data services such as "store and forward" voice communication or text-to-voice messaging systems, which can be particularly useful for transmitting critical information within vehicles where driver distraction is a potential problem. The term "non-voice" can be deleted from the definition while maintaining the basic "data" requirement of DSRC and excluding real-time voice communication (for which other radio services and frequency bands are better suited).

The Commission also seeks comment on whether the phrase "and commercial environments" in the current definition should be replaced with "and private environments". The Authority supports this change. DSRC is an evolving service for which all of the potential applications have yet to be clearly defined. This change will recognize the important role the private sector will play in the development of new DSRC technology. At the same time, such a change makes clear that the DSRC spectrum is not an appropriate location for cellular-based commercial applications such as commercial mobile radio service.

The Commission seeks comment, in the alternative, on whether the phrase “of public and commercial” should be deleted in its entirety so that the definition would read “a variety of environments”. The Authority strongly disagrees with such a change. As the Commission has tentatively concluded, DSRC service should be used primarily for public purposes. To ensure that this public purpose is fulfilled, it is important to keep the phrase “public environments” in the definition of DSRC service.

## **II. SERVICE ELIGIBILITY REQUIREMENTS**

### **A. Public vs. Private Use**

The Authority supports eligibility requirements that ensure priority for public entities, while permitting “private” uses that are consistent with the intelligent highway purpose of DSRC. For instance, E-ZPass is now used as a payment mechanism for parking fees at certain publicly owned parking facilities. There are a wide variety of still-developing intelligent highway services and technologies to promote safe, efficient traffic flow (including electronic toll collection), accident avoidance, and rapid emergency responses. The participation of the private sector in the development of new DSRC technology and services is necessary to ensure the introduction of these new services as rapidly and fully as possible. Such “private” uses will help drive research and development of DSRC technologies and increase vendor interest in the service. The result will be broader availability of technology for public users, lower equipment costs, and ultimately, ubiquitous deployment of interoperable technologies.

At the same time, the Commission must ensure that private use does not displace core DSRC public services. The radio spectrum allocated for DRSC is not unlimited, and the potential for public services to be crowded out is real, especially along congested highway

corridors. Therefore, the Authority supports the Commission's tentative conclusion that the DSRC band should be used primarily for public purposes.

#### **B. Definition of Public Safety Radio Services**

The Commission seeks comment on whether “public safety” should be defined for ITS purposes consistent with the definition of “public safety radio services” in section 309(j)(2) of the Communications Act, which was developed for the purpose of delineating those services that should not be subject to spectrum auctions. That definition provides that “public safety radio services” include “private internal radio services used by State and local governments and non-government entities and including emergency road services by non-for-profit organizations that – (i) are used to protect the safety of life, health, or property; and (ii) are not made commercially available to the public.”

ETC applications such as E-ZPass support a variety of purposes that promote public safety. By eliminating the need to stop to pay a toll, E-Z Pass substantially improves the rapid and efficient movement of traffic. This reduces congestion and accidents caused by congestion, thereby reducing the number of injuries and fatalities and the amount of property damage on our nation's highways. Though the TRANSMIT program, E-Z Pass technology is also used to monitor traffic flow along the highway and obtain early detection of highway incidents and congestion. Notice of incidents can then be relayed to the traveling public through ITS deployments such as variable message signs.

As indicated earlier, the Authority is a public benefit corporation responsible for the construction, reconstruction, operation and maintenance of the Thruway. Such responsibilities include maintaining safe road conditions, incident response and management, removal of disabled vehicles, deployment of law enforcement, and maintaining safe and efficient traffic

flow. Clearly, State government created the Authority to serve a public purpose, which deployment of E-ZPass supports. The Authority believes that its use of ETC falls within the definition of “public safety radio services” set forth in section 309(j)(2) of the Communications Act. If the Commission decides to adopt the definition of “public safety radio services” in this NPRM, the Authority strongly urges the Commission to make a finding that the use of ETC by public benefit entities such as the Authority falls within that definition.

The Commission seeks comment on using the narrower definition of “public safety services” contained in Section 337(f)(1) of the Act, which is intended to govern eligibility for licenses in the 700 MHz public safety band. The Authority believes that such a definition is too narrow for implementation in the DSRC band and recommends against its use.

### **C. Definition of Private Services**

The Authority supports ITS America’s recommended definition of “private services” and urges the Commission to adopt it as part of the rules for DSRC service.

## **III. INTEROPERABILITY STANDARDS**

The Authority firmly supports the ASTM E2213-02 DSRC Standard, and urges the Commission to adopt it as an open, non-proprietary wireless transmission standard for DSRC applications in the 5.9 GHz. band. The Authority also recommends that the licensing and service rules for the band specify compliance with Layer I (the physical layer) and Layer 2 (the Medium Access Control) of the ASTM E2213-02 DSRC Standard.

The Authority believes the adoption of, and compliance with a common standard will serve the best interests of the end user, equipment manufacturers, installers and service provider communities. Compliance with a national standard for DSRC systems will ensure

interoperability, enhance competition and market growth, reduce both component and installations costs, and shorten the time between development and the marketplace. This has been demonstrated with E-Z Pass operations where a common technology has been widely accepted in ten states and border crossings.

The FCC has expressed concern that the designation of DSRC standards at this time may restrict technical innovation and participation in product development at 5.9 GHz. To the contrary, the development of the ASTM E2213-02 DSRC Standard was a product of a rigorous and concerted effort, for several years, which involved the extensive participation of a broad cross section of the international scientific, manufacturing and user communities. Consensus was reached amongst these participants who came from diverse interests, technical backgrounds and experiences. The Authority believes the DSRC Standard ASTM E2213-02 is both technically sound and conducive enough to satisfy existing users and attract potential new players in market development.

The ASTM E2213-02 DSRC standard is based on the widely used Institute of Electrical and Electronic Engineers (IEEE) 802.11 and 802.11a wireless communication standards. There already exists a large manufacturing base of devices compatible to these standards, which would enhance interoperability and market growth for DSRC based applications, products and services in the 5.9 GHz band.

The Authority also recommends that the FCC rules specifying interoperability include equipment compatibility as well. To ensure compatibility and thus interoperability, DSRC On-board Units (OBU's) operating in the 5.9 GHz should be type certified and authorized generally by rule. These measures are critical steps for achieving national interoperability in DSRC applications in the 5.9 GHz Band.

#### **IV. BAND PLAN**

The Authority recommends that the Commission adopt, as ITS America has proposed, the ASTM-DSRC Standard channelization plan for the 5.9GHz Band. Pursuant to this plan, the 75 MHz spectrum in the Band would be divided into seven channels, each 10 MHz wide, with the remaining 5 MHz reserved for future use. One of the seven channels would be used as a "Control Channel" with the remaining six channels designated as "Service Channels". Public and private users would operate on a shared basis in both the Control and Service Channels, with priority given to messages generated by public entities.

#### **V. LICENSING REQUIREMENTS FOR RSUs and OBUs**

The Authority strongly believes, as the Commission suggested in the NPRM, that DRSC licenses in the 5.9 GHz Band should not be issued by auction because the primary function of the Band is to support public purposes.

##### **A. Road Side Units (RSUs)**

The Authority recommends that the Commission issue RSU licenses in this Band on a site-by-site basis, subject to frequency coordination to reduce the potential for interference among users, and provided public entities are permitted to obtain "ribbon" or "corridor" licenses where appropriate. Arbitrary geographic areas, such as states or "Economic Areas", should not be used for RSU licenses because users requirements will in most cases be at a far more narrowly defined location(s) or within more narrowly defined areas (e.g., along certain highway corridors, river crossings, etc).

Each RSU license should correspond to a specifically defined "communications zone". However, public entities such as toll operators, who are responsible for a large number of

facilities across a wide geographic area, should be allowed to obtain a single "ribbon" or "corridor" license to operate their systems with the appropriately defined respective "communications zone". This would relieve public entities of the tremendous cost and effort required to file for multiple licenses. It would also relieve the spectrum administrator from any unnecessary administrative burden. The Authority urges the Commission to use the DSRC device classes for the RSU as well as transmission power ranges that are proposed in the ASTM E2213-02 DSRC standard as a frame of reference for issuing appropriate licenses to applicants.

With one important exception, site specific licensing should be the same for public and private DSRC licensees. That is, both classes of service should be licensed on a site-specific basis subject to appropriate coordination procedures to prevent mutually destructive interference. In this way, the Commission will be able to maintain a suitable database of actual use by both classes of users and be in a position to monitor the development of the Band to ensure that the Band is used as it was intended, primarily for public purposes.

The one important exception pertains to the status of the private user in the event that its proposed licensing or actual use produces an interference condition to the defined service area of a public DSRC station. In that event, the private DSRC station should be classified as a secondary use and be required to make whatever changes are necessary to eliminate the interference condition. Because of the relatively small service areas of DSRC stations, the Authority believes that the potential for such an interference condition is not substantial. However, in those situations where an interference condition is presented, the public safety DSRC station clearly must be accorded primary status over the private use under the requirements of the Communications Act.

## **B. On Board Units (OBUs)**

The OBUs are different from devices that are now licensed in the 900 MHz band. The Authority recommends that OBUs operating in the 5.9 GHz band be licensed by rule rather than licensed individually or treated as unlicensed devices. As DSRC applications for ITS use continue to grow, it is anticipated that millions of passenger, bus and commercial vehicles will be OBU equipped. As a result, licensing each of these units individually would be impractical, inefficient and costly. It would also slow development and production of devices. On the other hand, licensing these devices by rule could enhance the development of new devices as well as speed production and market growth. The Authority believes that organizations such as OmniAir, initiated by the IBTTA, can certify that DSRC components meet all applicable standards. This could assist in avoiding unnecessary, costly and repetitive testing by both users and integrators alike.

## **VI. CONTINUED OPERATION OF EXISTING 900 MHz SYSTEMS**

The Commission should clearly establish that the new 5.9 GHz allocation does not have any impact on continued DSRC use of the 900 MHz band. While the Authority and other members of the IAG will likely migrate their E-ZPass operations to the 5.9 GHz band, that will not happen immediately and there will need to be dual operations in both 900 MHz and 5.9 GHz for the foreseeable future. The migration to 5.9 GHz will occur over time, as OBUs are installed in vehicles for a variety of public and private applications. When there is sufficient deployment of OBUs in vehicles, the Authority and other member of the IAG will be able to phase in 5.9 GHz systems at their tollbooths. However, the current 900 MHz operations will need to be

maintained for existing users until market conditions and technology are sufficient to convert all users to the 5.9 GHz system.

## **CONCLUSION**

DSRC services in the 5.9 GHz Band hold the promise of providing the public with a vast array of intelligent transportation services that will contribute in a very direct and substantial way to the safety of life, health and/or property on our nation's road and highway systems. For this reason, the Authority urges the Commission to proceed promptly in implementing use and service rules for the Band as outlined in these comments.

Respectively submitted,  
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